

ABSTRACT OF THE INVENTION

A microcontroller, connected to a memory which stores instructions and data, includes an instruction execution unit for reading instructions and data from the memory and processing the read instructions and a prefetch circuit unit that receives the instructions and data read from the memory and detects pseudo instructions included in the instructions and data. A pseudo instruction precedes a branch instruction and indicates the existence of the branch instruction and the branch to address. The prefetch circuit unit includes a prefetch buffer connected between the instruction execution unit and the memory for temporarily storing instructions and data being transferred from the memory to the instruction execution unit and a pseudo instruction buffer for temporarily storing instructions and data located at the address of the branch instruction which follows the pseudo instruction. Then, if the branch is taken, the branch to instructions have been prefetched and are immediately available to the instruction execution unit by way of the pseudo instruction buffer.

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